



## INFLUENCE OF THE PLACEBO EFFECT ON THE RECOVERY OF PATIENTS WITH CARPAL TUNNEL SYNDROME

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### ABSTRACT:

The placebo effect is a phenomenon of influencing certain clinical symptoms under the influence of drugs or medical manipulations that completely resemble the real ones. An increasing number of clinical trials on the effects of oral, parenteral and topical medications, as well as hardware procedures, are being conducted with placebo control groups to clarify the real clinical effect of the substances or methods used.

**Methods:** A total of 30 patients with carpal tunnel syndrome were investigated. In our study, we compared the effect of actually applied low-frequency pulsed magnetic field treatment and Ultraphonophoresis with Contractubex in the carpal tunnel area with a placebo. Patients were informed in advance that some of them would fall into the placebo group but would not know which ones.

**Results and analysis:** The result of the registration of the persons intended during the treatment in both groups and in the follow-up examination show that the pain is weaker at the end of the treatment course.

**Conclusion:** The use of preformed factors gives better results in reducing the pain syndrome within the treatment course, but it is not more effective in the long run than using a placebo.

**Keywords:** placebo effect, clinical trial, carpal tunnel syndrome,

### INTRODUCTION

Carpal tunnel syndrome is the most common nerve entrapment syndrome worldwide [1]. Given the reduced grip strength and impaired dexterity of the hand, the disease leads to serious changes in the quality of life of patients [2]. It affects 4-6% of the total population [3]. According to literature data, it affects women aged 40-50 more often than men, usually develops in the dominant hand and is professionally caused by work with vibrations, the predominance of repetitive movements of the same type, keyboard work and more. [4, 5]. The establishment of tunnel neuropathy of n. medianus in carpal tunnel syndrome requires the determination of the etiological factor that caused the damage in view of the correct therapeutic behavior [6]. The

carpal tunnel is a confined space containing bone, tendon, connective tissue, synovium, and nerve. It is considered an occupational disease - constant stretching, twisting and overextension in the wrist, as well as repetitive movements in the wrist joint, are proven causes of damage to n. median [7]. Virtually any process leading to narrowing of the carpal tunnel can cause compression damage to n. medianus and cause carpal tunnel syndrome [8].

The first manifestations of carpal tunnel syndrome are sensory - paresthesias in the area of the first three fingers of one (more often) and sometimes both hands, and in some cases - acroparesthesias [9, 10]. Weakness in abduction and opposition of the thumb can often be found in patients with carpal tunnel syndrome [10]. Partial atrophy of the tenor due to damage to m. abductor pollicis brevis is rare in advanced cases. Due to the presence of many vegetative fibers in the trunk of the median nerve, patients often report signs of sympathetic nerve fibers - swelling of the fingers, whitening or erythema of the palm and, less often, skin and trophic disorders of the fingertips [10].

Carpal tunnel syndrome is one of the most common diagnoses of hand complaints at the wrist, palm and finger levels. Diagnostic scales are highly informative for monitoring the development of the condition. At the same time, we must not forget that the patient's daily meetings with a therapist, performing various manual procedures and exercises can also significantly affect the patient's condition [10]. The information obtained can help patients to understand and choose treatment in a patient-centered fashion [11].

### METHODS

In our study, we compared the effect of actually applied low-frequency pulsed magnetic field treatment and Ultraphonophoresis with Contractubex in the carpal tunnel area with a placebo. Patients were informed in advance that some of them would fall into the placebo group but would not know which ones. Written informed consent was obtained from each patient to participate in the study. The first group included 15 patients, 13 women and 2 men, aged between 82 and 30 years. All were treated with a combination of two preformed physical factors: 1. *Low-fre-*

quency pulsed magnetic field (2 hard inductors were placed transversely in the area of the carpal canal of the affected arm, at parameters 20mT, period/pause = 2/8 for 15 minutes; 2. *Ultraphonophoresis* – a labile method, on the projection of the carpal tunnel of the affected limb, with mediator Contractubex, with an ultrasonic head with a sound area of 1 cm<sup>2</sup>, at a power of 0.8 - 1.0 W / cm<sup>2</sup>, 3MHz - for 8 min. The treatment with the listed reformed factors lasted 10 working days (2 calendar weeks) with a two-day weekend between them. Before starting treatment and during each visit, patients were reminded to perform the short kinesitherapy program repeatedly during the day. Visual analogue pain (VAS) pain was noted every day during the course and at the 6th-month follow-up. The second group also included 15 patients with carpal tunnel syndrome, 9 men and 6 women, aged between 18 and 66 years, who received a placebo combination of: 1. *Low-frequency pulsed magnetic field, without applying the intensity of the magnetic field and without having visibility to the device*; 2. *Ultraphonophoresis* - without applying intensity, a procedure imitating a labile method was performed. The patients were again positioned in the occipital position so that they could not see the display of the device. All other instructions were the same as the first

group. Patients were not informed during the entire course of therapy and follow-up after 6 months that they had been treated with a placebo.

## RESULTS AND DISCUSSION

When objectifying the effect on the visual-analog pain scale (VAS), the results for the two groups did not differ significantly.

As can be seen from the information, the trend is to reduce pain during treatment in both groups, and in the follow-up examination at 6 months, the pain is more severe than at the end of the treatment course but weaker.

## CONCLUSIONS

From our studies, we found that patients with carpal tunnel syndrome in whom the impairment is mild or moderate, with no evidence of severe compression of the medianus, are successful in physical therapy and have an improvement in a condition that correlates significantly more with the frequency and the correct implementation of the recommended exercises. The use of preformed factors gives better results in reducing the pain syndrome within the treatment course, but it is not more effective in the long run than using a placebo.

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